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Ivan RIVAL (editor), *Ordered Sets,* Proceedings of the NATO Advanced Study Institute held at Banff, Canada, August 28 to September 12, 1981 (D. Reidel, Dordrecht, Holland; Boston, U.S.A.; London, England, 1982) xx + 968 pp. Published in cooperation with NATO Scientific Affairs Division.

Preface. Participants. Scientific Programme. *Part I. Structure and Arithmetic of Ordered Sets. B. Jónsson:* Arithmetic of ordered sets. *B.A. Davey and D. Duffus:* Exponentiation and duality. *I. Rival:* The retract construction. *Part II. Linear extensions. R. Bonnet and M. Pouzet:* Linear extensions of ordered sets. *D. Kelly and W.T. Trotter, Jr.:* Dimension theory for ordered sets. *R.L. Graham:* Linear extensions of partial orders and the FKG inequality. *Part III. Set Theory and Recursion. J.E. Baumgartner:* Order types of real numbers and other uncountable orderings. *E.C. Milner and M. Pouzet:* On the cofinality of partially ordered sets. *G.F. McNulty:* Infinite ordered sets, a recursive perspective. *Part IV. Lattice Theory. R.P. Dilworth:* The role of order in lattice theory. *R. Freese:* Some order theoretic questions about free lattices and free modular lattices. *M.W. Mislove:* An introduction to the theory of continuous lattices. *G. Birkhoff:* Ordered sets in geometry, (Appendix: A lattice characterization of affine *n*-space, by *M.K. Bennet.*) *R. Wille:* Restructuring lattice theory: an approach based on hierarchies of concepts. *Part V. Enumeration. D.B. West:* Extremal problems in partially ordered sets. *R.W. Quackenbush:* Enumeration in classes of ordered structures. *C. Greene:* The Möbius function of a partially ordered set. *A. Björner, A.M. Garsia, and R.P. Stanley:* An introduction to Cohen–Macaulay partially ordered sets. *Part VI. Applications of Ordered Sets to Computer Sciences. A.J. Hoffman:* Ordered sets and linear programming. *E.L. Lawler and J.K. Lenstra:* Machine scheduling and precedence constraints. *D.S. Scott:* Some ordered sets in computer science. *Part VII. Applications of Ordered Sets to Social Sciences. J.P. Barthelemy, Cl. Flament, and B. Monjardet:* Ordered sets and social sciences. *K.P. Bogart:* Some social science applications of ordered sets. *Part VIII. Problem Sessions.* Introduction by B. Sands and R.E. Woodrow. Order Types. Combinatorics. Linear extensions of finite ordered sets. Scheduling and sorting. Graphs an enumeration. Social science and operations research. Recursion and game theory. Order-preserving maps. Lattices. Miscellaneous. *Part IX. A Bibliography.* Introduction by I. Rival.

M.A.H. DEMPSTER, J.K. LENSTRA and A.H.G. RINNOOY KAN (editors), *Deterministic and Stochastic Scheduling,* Proceedings of the NATO Advanced Study and Research Institute on Theoretical Approaches to Scheduling Problems held in Durham, England, July 6–17, 1981 (D. Reidel, Dordrecht, Holland; Boston, U.S.A.; London, England, 1982) 419 pp. Published in cooperation with NATO Scientific Affairs Division.

Preface. *Part I. Advanced Study Institute Proceedings.* Introduction. *M.L. Fisher:* Worst-case analysis of heuristic algorithms for scheduling and packing. *E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan:* Recent developments in deterministic sequencing and scheduling: A survey. *B. Simons:* On scheduling with release times and deadlines. *C. Martel:* Scheduling uniform machines with release times, deadlines and due times. *E.L. Lawler:* Preemptive scheduling of precedence-constrained jobs on parallel machines. *J.C. Gittins:*Forwards induction and dynamic allocation indices. *G. Weiss:* Multiserver stochastic scheduling. *M. Pinedo, L. Schrage:* Stochastic shop scheduling: A survey. *S.M. Ross:* Multi-server queues. *K.C. Sevcik:* Queueing networks and their computer system applications: An introductory survey. *E. Gelenbe:* Stationary properties of times vector addition systems. *L. Schrage:* The multiproduct lot scheduling problem. *E.G. Coffman, Jr.:* An introduction to proof techniques for bin-packing approximation algorithms. *M.A.H. Dempster:* A stochastic approach to hierarchical planning and scheduling. *W. Gaul:* On stochastic analysis of project-networks. *Part II. Advanced Research Institute Proceedings.* Introduction. *E.G. Coffman, Jr., G.N. Frederickson, G.S. Lueker:* Probabilistic analysis of the LPT processor scheduling Heuristic. *P. Whittle:* Sequential project selection (multi-armed bandits) and the Gittins index. *P. Nash, R.R. Weber:* Dominant strategies

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Peter M. ALBERTI and Armin UHLMANN, *Stochasticity and Partial Order,* Doubly Stochastic Maps and Unitary Mixing (Mathematics and its Applications, Vol. 9) (VEB Deutscher Verlag der Wissenschaften, Berlin; D. Reidel, Dordrecht, Holland; Boston, U.S.A.; London, England, 1982) 123 pp.

Editor's Preface. Introduction. 1. *Some classical results:* Elementary notations. The linear space L^1 in n dimensions. Stochastic and doubly stochastic maps. The relation $>$. An example: Comparison of Gibbsian states. An example: Localization of spectra for Hermitian matrices. Convexity and the relation $>$. Examples: Some maps and processes. A partial order of m-tuples $a_1, \ldots, a_m$. 2. *Order structures of matrices:* The relation $>$ in the space B^1. Some doubly stochastic maps. Convexity and the relation $>$. Another partial order. Further examples: $A^k \rhd |A|^k$ and related inequalities. Miscellaneous. 3. *The order structure in the state space of C*- and W*-algebras.* Preliminaries. The relation $>$; definitions and elementary results. Some essential results for W^*-algebras. 4. *The c-ideal.* Definition and the existence of the c-ideal. Ky Fan functionals and von Neumann's relation. A centre-valued convex trace. Maximally mixed states (chaotic states). Technical Lemmata. 5. *The Σ-property.* The definition, preliminary remarks. The case of properly infinite projections - type III. The finite case. The universality of the Σ-property for W^*-algebras. A duality theorem, remarks. Positive linear forms on C^*-algebras and the Σ-property. 6. *The dual structure in W*-algebras.* Introduction. Technical preliminaries. The purely infinite case. Approximation results. A characterization of $(M_+, >)$. The main theorem. A special case: Finite W^*-algebras. Examples for $>$ on M_+. *References. Symbols. Key words.*

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Preface. *Chapter 1. Mathematical Background.* Algebra. Krawtchouk Polynomials. Combinatorial Theory. Probability Theory. *Chapter 2. Shannon's Theorem.* Introduction. Shannon's Theorem. Comments. Problems. *Chapter 3. Linear Codes.* Block Codes. Hamming Codes. Majority Logic Decoding. Weight Enumerators. Comments. Problems. *Chapter 4. Some Good Codes.* Hadamard Codes and Generalizations. The Binary Golay Code. The Ternary Golay Code. Constructing Codes from Other Codes. Reed-Muller Codes. Comments. Problems. *Chapter 5. Bounds on Codes.* Introduction. The Gilbert Bound. Upper Bounds. The Linear Programming Bound. Comments. Problems. *Chapter 6. Cyclic Codes.* Definitions. Generator Matrix and Check Polynomial. Zeros of a Cyclic Code. The Idempotent of a Cyclic Code. Other Representations of Cyclic Codes. BCH Codes. Decoding BCH Codes. Reed-Solomon Codes. Quadratic Residue Codes. Comments. Problems. *Chapter 7. Perfect Codes and Uniformly Packed Codes.* Llyod's Theorem. The Characteristic Polynomial of a Code. Uniformly Packed Codes. Examples of Uniformly Packed Codes. Non-existence Theorems. Comments. Problems. *Chapter 8. Goppa Codes.* Motivation. Goppa Codes. The Minimum Distance of Goppa Codes. Asymptotic Behaviour of Goppa Codes. Decoding Goppa Codes. generalized BCH Codes. Comments. Problems. *Chapter 9. Asymptotically Good Algebraic Codes.* A Simple Nonconstructive Example. Justesen Codes. Comments. Problems. *Chapter 10. Arithmetic Codes.* AN Codes. The Arithmetic and Modular Weight. Mandelbaum-Barrows Codes. Comments. Problems. *Chapter 11. Convolutional Codes.* Introduction. Decoding of Convolutional Codes. An Analog of the Gilbert Bound for Some Convolutional Codes. Construction of Convolutional Codes from Cyclic Block Codes. Automorphisms of Convolutional Codes. Comments. Problems. *Hints and Solutions to Problems. References. Index.*